



U. S. Steel Corporation  
Minnesota Ore Operations  
P.O. Box 417  
Mt. Iron, MN 55768

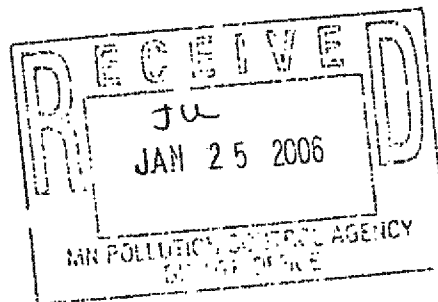
RECEIVED

JAN 17 2006

CERTIFIED MAIL 7004 2510 0006 3313 9512

January 12, 2006

Minnesota Pollution Control Agency  
Beckie Olson, MAR/MAJ  
520 Lafayette Road North  
St. Paul, MN 55155-4194



**Re: Attachment for Industrial Surface Water Discharge Wastewater Treatment Facilities National Pollutant Discharge Elimination System (NPDES) Permit (wq-wwprm7-20) and Supporting Information – Permit No. MN0057207**

Dear Ms. Olson:

This letter provides supporting information for the subject permit application, which has been completed and is included in this correspondence as Attachment 1. The permit application is being submitted for a disposal system that will treat the discharge from a new waste gas wet scrubber proposed for Minntac's Line 3 grate/kiln. As such, answers to questions contained in the permit application are specific to the proposed scrubber effluent treatment system. Each of the general categories contained in the permit application are listed below and treated separately. Specific questions from the application form are shown in bold type and included verbatim. Supporting information not included on the completed application because of limitations inherent to the application form is shown below in regular text.

**BASIC INFORMATION**

See permit application.

**STORM WATER**

**2. Is the facility now covered by an MPCA storm water NPDES permit?**

Minntac holds two separate NPDES permits to cover water discharges from its facility: Permit MN0052493 covers water discharges from the mine area in the southern portion of the facility and Permit MN0057207 covers water discharges from its tailings basin in the northern portion of the facility. Permit MN0052493 (Minntac Mining Area) was reissued January 7, 2004 and contains specific language related to a Storm Water Pollution Prevention Plan (SWPPP).

Permit MN0057207 has been expired since July 31, 1992, and does not contain SWPPP requirements. Minntac continues to operate its tailings basin under the expired permit and applied for reissuance in January 1992. As per guidance from MPCA, Minntac applied for a General Storm Water Permit for its tailings basin in May 2003. The MPCA



acknowledged receipt of the permit application in a letter dated May 6, 2003, and indicated that Minntac would receive notification by mail about reissuance of the General Storm Water Permit for Industrial Activity as new information on the status of the permit becomes available. To date, Minntac has not received any further MPCA correspondence specific to the General Storm Water Permit.

#### PROCESS WASTEWATER

See permit application.

#### WATER SUPPLY

See permit application.

#### WATER QUALITY TEST RESULTS

**9. A. Attach (1A) test results for total suspended solids and pH at each of the facility discharge points.**

Because of the design of the proposed Line 3 scrubber treatment system, an evaluation of total suspended solids and pH is not applicable. The scrubber discharge stream will be treated through a thickener to remove suspended solids and the thickener overflow will be recycled back into the process water system.

**B. Attach (2A) test results for all other pollutants known or reasonably believed to be present at each of the facility discharge points.**

Impacts on key constituents of concern with respect to tailings basin water quality from the proposed Line 3 scrubber and treatment system have been projected based on jar testing results and mathematical modeling of the existing system. Impact projections were developed for sulfate, hardness, chloride, fluoride, total dissolved solids, and specific conductance, in terms of expected concentration increases over the next five years. A 5-year graphical projection for each of the constituents listed above, both with and without input from the proposed Line 3 scrubber treatment system, is contained in Attachment 2A. It can be reasonably expected that the constituent concentrations shown on these projections could be present at the tailings basin seeps, which are the permitted discharge points for this portion of the facility.

#### CHEMICAL ADDITIVES

See permit application.

#### NON-CONTACT COOLING WATER

See permit application.

#### WASTEWATER TREATMENT AND DISCHARGE

See permit application.

#### CERTIFICATION

See permit application.

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If you have any questions or concerns with the permit application, or any of the supporting materials, please do not hesitate to contact me. I can be reached by telephone at (218) 749-7485, by fax at (218) 749-7360, or by email at [tmoe@uss.com](mailto:tmoe@uss.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas A. Moe". The signature is fluid and cursive, with the first name "Thomas" being more prominent and the last name "Moe" following in a similar style.

Thomas A. Moe  
Environmental Control Engineer  
U. S. Steel – Minntac

Cc: Jeff Udd, MPCA Duluth Regional Office  
Scott Vagle, USS Minntac  
Doug Boyea, USS Pittsburgh  
File



**Udd, Jeff**

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**From:** Udd, Jeff  
**Sent:** Friday, April 07, 2006 1:52 PM  
**To:** 'phkennedy@mchsi.com'  
**Subject:** FW: U.S. Steel - Minntac Permit Modification to Construct and Operate Wastewater treatment system

Since we have not heard back from the basin association in the last 2 weeks, MPCA staff assumes that the approach to address your comments as outlined below will be satisfactory to the concerned basin association members. If this is not the case, please respond by the close of business on Monday, April 10.

Thank you.

Jeff Udd

-----Original Message-----

**From:** Udd, Jeff  
**Sent:** Tuesday, March 28, 2006 11:28 AM  
**To:** 'phkennedy@mchsi.com'  
**Subject:** RE: U.S. Steel - Minntac Permit Modification to Construct and Operate Wastewater treatment system

One of the issues I wanted to speak with you about is the informational meeting you requested. A little bit of background first – the new Line 3 scrubber will have a very positive effect on facility air emissions. At the same time, the proposed scrubber wastewater treatment system identified in the draft permit will ensure that the new scrubber system does not further impact the water quality of the tailings basin for both sulfate and hardness. While we understand this permit modification does not address all of the concerns around the tailings basin and its operation, the opportunity to address those concerns will occur during the permit reissuance process. The recently completed Environmental Impact Statement (EIS) for a proposed discharge from the tailings basin studied a variety of concerns. Prior to receiving a permit application from U.S. Steel for a direct discharge, the MPCA will hold information meetings to discuss preliminary discharge options, as well as public concerns from those options. The first informational meeting is tentatively scheduled for April 20 in Virginia. A second meeting will be held sometime after an application is received, but prior to any draft permit being placed on public notice. We hope these meetings can address your concerns. Please let me know if this is an acceptable approach to the basin association.

Also – I would like to get more information on the abandoned dump site you refer to in your comments below. Currently, U.S. Steel operates an industrial/demolition landfill on site. As far as I know, there are approximately 3 other sites which qualified as permit-by-rule sites. Can you provide more detail on the dump site so we can respond appropriately?

Thank you for your time.

Jeff Udd

-----Original Message-----

**From:** phkennedy@mchsi.com [mailto:phkennedy@mchsi.com]  
**Sent:** Monday, March 27, 2006 12:56 PM  
**To:** Udd, Jeff  
**Subject:** RE: U.S. Steel - Minntac Permit Modification to Construct and Operate Wastewater treatment system

Dear Jeff,

Feel free to contact me by e-mail and I will pass on your information to our president and vice-

4/7/2006

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president.

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From our little home on the range.

----- Original message from "Udd, Jeff" <Jeff.Udd@state.mn.us>: -----

Thank you for the comments. Is there a phone number I could reach you at to help us fully understand your comments?

Thanks, Jeff

Jeff Udd, P.E.

Minnesota Pollution Control Agency  
525 Lake Avenue South, Suite 400  
Duluth, MN 55802  
(218) 723-4843 phone  
(218) 723-4727 fax  
jeff.udd@pca.state.mn.us

-----Original Message-----

**From:** Pat and Dar [mailto:phkennedy@mchsi.com]

**Sent:** Thursday, March 23, 2006 8:23 PM

**To:** Jeff.Udd@state.mn.us

**Cc:** Pat and Dar

**Subject:** U.S. Steel - Minntac Permit Modification to Construct and Operate Wastewater treatment system

Dear Mr. Udd,

As Secretary of the Dark River Basin Association I am speaking for our association members. First we want to thank you for giving us advance notification of the proposed construction and operation of the wastewater treatment system that will operate in conjunction with the proposed wet scrubber on Agglomerator Line 3. We are encouraged by what appears to be beneficial steps, and while we believe this more than likely will improve the quality of water discharged into the tailings basin, we certainly would like more clarification on this matter. We do understand that the plan is now taking shape to discharge the Minntac Water Inventory Reduction into the Lake Superior Watershed via the West Two Rivers Reservoir, but until the time the water reduction plan is actually put into effect Dark River and Dark Lake will still be receiving the 3+ million gallons of daily seep from the tailings basin. We also question why Minntac has been allowed to operate without a valid permit for 14 years? Another question that has been raised by several of our members is whether or not the abandoned Minntac dump site has been sealed sufficiently to protect surrounding areas from contaminated runoff?

We believe a public informational meeting in Virginia, MN could answer all questions and benefit any interested parties.

Thank you,  
Darlene Kennedy  
Secretary Dark River Basin Association



**Attachment 1**

**Attachment for Industrial Surface Water Discharge Wastewater Treatment  
Facilities National Pollutant Discharge Elimination System Permit (wq-wwprm7-20)**





**ATTACHMENT FOR**  
**Industrial Surface Water Discharge**  
**Wastewater Treatment Facilities**  
**National Pollutant Discharge Elimination System**  
**(NPDES) Permit**

<b>MPCA USE ONLY</b>		
Application Number		
MN		
Date Received		
Month	Day	Year

COMPLETE APPLICATION BY PRINTING OR TYPING. PLEASE MAKE A PHOTOCOPY FOR YOUR RECORDS.

PERMITTEE: U. S. Steel Corporation

**BASIC INFORMATION**

1. Principal Facility Activity: Iron Ore Mining and Processing

Products Produced: Taconite pellets

Raw Material Consumed: Crude taconite ore, limestone/dolomite (fluxstone), and bentonite

Average and maximum amount per Unit Time (such as tons/year, kilograms/day) of product: \_\_\_\_\_

Average - 14 million long tons per year (LT/yr), Maximum - 16.5 million LT/yr

Average and maximum amount per Unit Time (such as tons/year, kilograms/day) of raw material: \_\_\_\_\_

Crude Ore: Average - 48.5 million LT/yr, Maximum - 53 million LT/yr. Fluxstone (47% limestone: 53% dolomite):

Average - 1.16 million short tons per year (T/yr), Maximum - 1.32 T/yr. Bentonite: Average - 135,000 T/yr, Maximum - 150,000 T/yr.

Standard Industrial Classification (SIC) Code Number: 1011

**STORM WATER**

2. Is the facility now covered by an MPCA storm water NPDES permit? ☒ Yes ☒ No

If yes, indicate the permit number and proceed to item 6 below: MN Note: see cover letter.

3. Does storm water contact ANY raw or processed materials, finished products, industrial waste, byproducts, or any other type of materials at the facility? ☐ Yes ☐ No

If yes, describe these materials: \_\_\_\_\_

4. Is any vehicle maintenance, transportation equipment cleaning, or airport deicing conducted at the facility?

☐ Yes ☐ No

5. Indicate where the storm water from the facility discharges to: \_\_\_\_\_

**PROCESS WASTEWATER**

6. Does the facility generate process wastewater? ☒ Yes ☐ No

7. If yes, the process wastewater from the facility is disposed of to: (check all that apply)

☐ Municipal storm sewer

☐ Sanitary Sewer

☐ Storm water retention basin or pond

☐ Septic tank/drain field

☒ Surface Water, Name: Dark River, Sandy River

☐ Other



## WATER SUPPLY

<b>8. What is the source of the intake water supply for the facility?</b> <input type="checkbox"/> Municipal water supply, city name: _____ <input type="checkbox"/> Ground water, intake location: _____ <input checked="" type="checkbox"/> Surface water, name: <u>Mt. Iron Pit</u>	<b>Rate of supply (gallons/day)?</b>  <u>6,000,000</u>
Is the intake water supply chlorinated or otherwise disinfected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

## WATER QUALITY TEST RESULTS

Please clearly indicate, with all test results, the specific dates, locations, types of wastewater, and methods of sampling.

9. A. Attach (1A) test results for total suspended solids and pH at each of the facility discharge points.

B. Attach (2A) test results for all other pollutants known or reasonably believed to be present at each of the facility discharge points. Such pollutants may include biochemical oxygen demand, fecal coliform, temperature (heat), nutrients (phosphorus, ammonia, nitrate, nitrite), metals, salts, cyanide, residual chlorine, fluoride, oil and grease, polychlorinated biphenyls, phenols, polynuclear aromatic hydrocarbons, volatile organic compounds, pesticides and/or radioactivity.

C. If this is an application for reissuance of an existing permit, review your existing NPDES/SDS permit to see if it has special testing requirements for the application for reissuance of the permit. If so, be sure to comply with those requirements. The existing permit also may have special requirements for reports or other submittals for the application for reissuance of the permit. Be sure to comply with these requirements also. Failure to complete the application for reissuance of a permit as required by the permit is a violation of the permit itself and is subject to enforcement action.

10. Are there ground water monitoring wells or lysimeters at your facility?    ☐ Yes    ☒ No  
 If yes, describe where they were installed \_\_\_\_\_

11. Indicate the name of the laboratory that analyzes your samples: Northeast Technical Services, Inc.  
 Indicate the Minnesota Department of Health Laboratory Certification Number for this laboratory: 027-137-157

## CHEMICAL ADDITIVES

12. List below all chemical additives that are used or proposed to be used at the facility. This must include all process reagents, flocculants, biocides, wastewater treatment chemical additives, chlorine or other disinfectants, detergents, cleaning products, chemical dust suppressants, freeze conditioning agents, etc.

Product Name	How often added?	Average rate of use (weight or volume per year)
Calcium Hydroxide	Continuous	1530 tons/yr

You must attach (3A) information on chemical composition, aquatic toxicity, human health, and environmental fate for each proposed chemical additive. Attach (4A) Material Safety Data Sheets and complete product labels for each additive.



# **NON-CONTACT COOLING WATER**

**13. Does the facility discharge non-contact cooling water (e.g., power generation, refrigeration, boilers, etc.)?**

☐ Yes ☒ No

If yes, is this once-through ☐ or recirculating ☐ ?

Are there any chemical additives to this wastestream? ☐ Yes ☐ No

If yes, list under "Chemical Additives": \_\_\_\_\_

Flow Rate Average	Flow Rate Maximum	Is discharge continuous, controlled, intermittent, or periodic seasonal?	Temperature	Receiving Water

## **WASTEWATER TREATMENT AND DISCHARGE**

**14. How do you dispose of sewage (sanitary wastewater) at the facility?** Not applicable.

**15. Give a complete description of your wastewater treatment system and note any changes made since this permit was last issued:**

The proposed waste gas wet scrubber will be operated in a recirculating mode with a low volume effluent discharge (blowdown). Blowdown discharged from the scrubber at a rate of approximately 50 gpm will be treated with lime in a mix tank to increase the pH and promote calcium sulfate precipitation in a thickener. Thickener underflow will be discharged to a 25 acre-ft double-lined sludge pond. Thickener overflow will be treated with additional lime to increase the hydroxide ion concentration and sent to the Agglomerator slurry mix tank, which accepts magnetite-rich concentrate slurry from the Concentrator. The hydroxide in the thickener overflow will convert available alkalinity in the concentrate slurry to carbonate alkalinity and calcium carbonate will precipitate. The precipitated calcium carbonate will be removed with concentrate at the disc filters and incorporated into the finished product. The treated water will pass through the disc filters and be recirculated back to the Concentrator for reuse.

**16. Identify the discharge rate (gallons per day) and other information for each wastewater outfall discharge point:**

Outfall point number	Type of wastewater	Discharge flow rate, average	Discharge flow rate, maximum	Is discharge continuous, controlled, intermittent, or periodic seasonal?	Route to receiving waters
N/A	Treated blowdown	45-50 gpm		continuous	Treated discharge is recirculated back into process water system.





17. Describe how and where the sediments and sludges removed from the wastewater treatment system at the facility are disposed of:

Scrubber blowdown suspended solids and precipitated sludges will be removed from the wastewater stream in a thickener and will make up the thickener underflow. Thickener underflow will be discharged in batch mode to minimize plugging of the discharge piping. The periodic underflow discharge rate is estimated to be 35 gpm, corresponding to a long-term average rate of about 2 –3 gpm. The underflow will be pumped to a roughly 25 acre-foot, double-lined settling pond, which will likely be used for ultimate disposal of the settled solids.

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18. Attach a diagram chart (1F) of the flow through the facility and the wastewater treatment system to each discharge point.

19. Attach a detailed map (1M), either U.S. Geological Survey, County Soil Survey, or County Plat where the location of the facility, the wastewater treatment system, each of the discharge outfalls, other surface and ground water sampling points, and all receiving waters are all clearly identified.

21. If the system is currently covered under an NPDES/SDS permit, has the system been in compliance with the permit limits during the past five years?

☒yes      ☐no      If no, please explain. \_\_\_\_\_

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ATTACHMENTS (Checklist)

- ☒ (1A) Test results for total suspended solids & pH.
- ☒ (2A) Test results for all other pollutants.
- ☒ (3A) Information on chemical composition.
- ☒ (4A) MSDS sheets & product.

MAPS (Checklist)

- ☒ (1M) U.S. Geologic Survey, Topographic map, County Soil Survey, or County Plat

FLOW CHART (Checklist)

- ☒ (1F) Route of wastewater flow through all treatment processes.

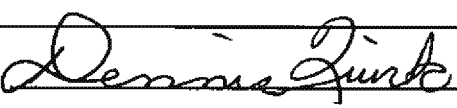


## CERTIFICATION

Federal regulations (Section 309(c)(2) of the Clean Water Act and State regulations (Minn. R. 7001.0070) require the authorized signer to be one of the following:

- A. For corporation, a principal executive officer of at least the level of vice president;
- B. For a partnership or sole proprietorship, a general partner or the proprietor, respectively; or
- C. For a municipality, State, Federal, or other public facility, either a principal executive officer or ranking executive official.
- D. If the operator of the facility is different than the owner, both the operator and the owner according to items A to C.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

PRINTED NAME <u>Dennis Quirk</u>	TITLE <u>General Manager, U. S. Steel - Minnesota Ore Operations</u>
AUTHORIZED SIGNATURE <u></u>	DATE <u>1/12/06</u>
STATE TAX I.D. # <u>5738839</u>	FEDERAL TAX I.D. # <u>25-1897152</u>

### Reminder:

- ✓ *Did you enclose the Transmittal Form?*
- ✓ *Did you enclose all necessary attachments?*

**Applications submitted without an authorized signature, the required application fee and attachments, will be returned. Please make your check payable to the Minnesota Pollution Control Agency and mail to:**

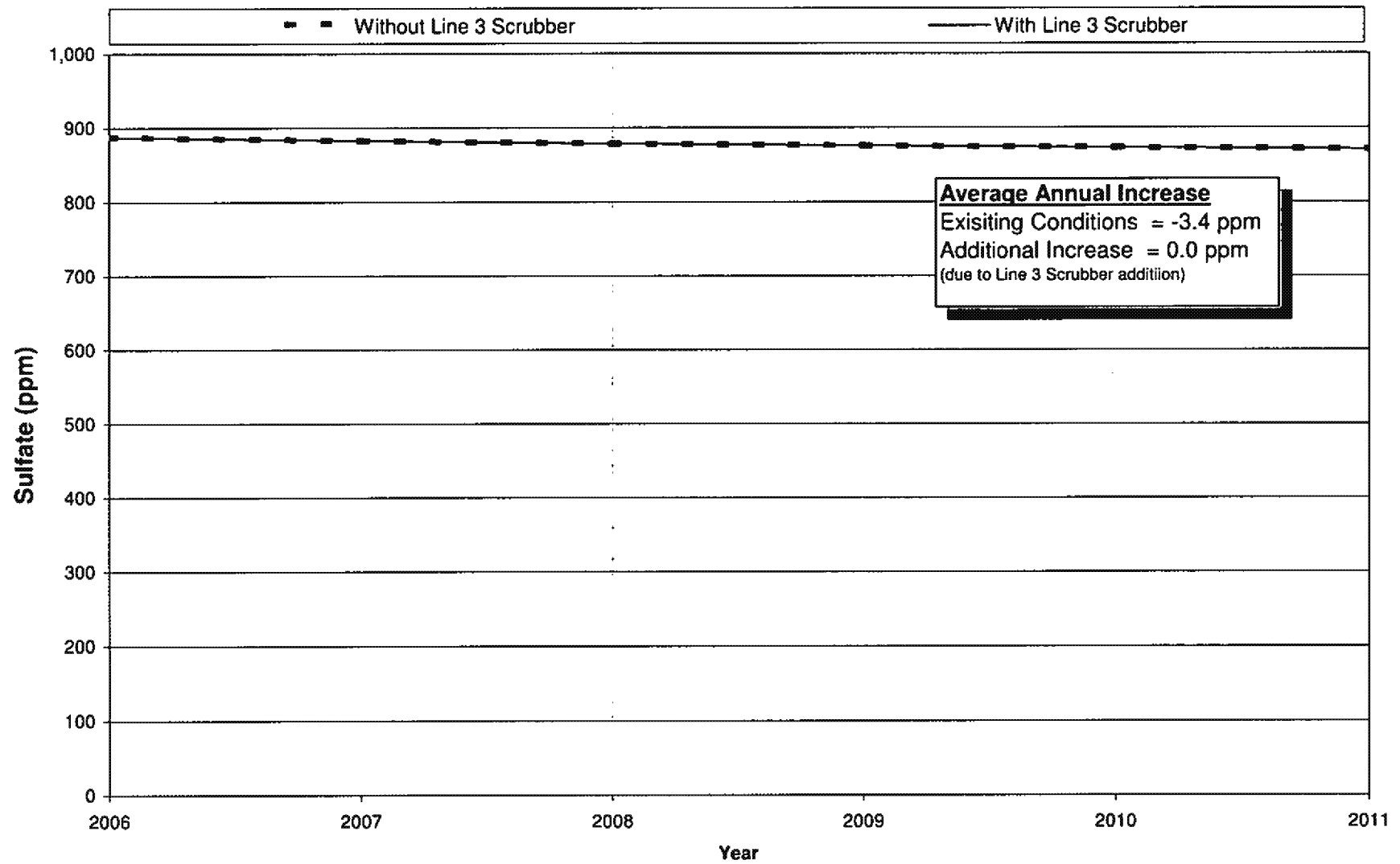
**Minnesota Pollution Control Agency  
Beckie Olson, MAR/MAJ  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194**



**Attachment 2A**  
**Test results for all other pollutants**



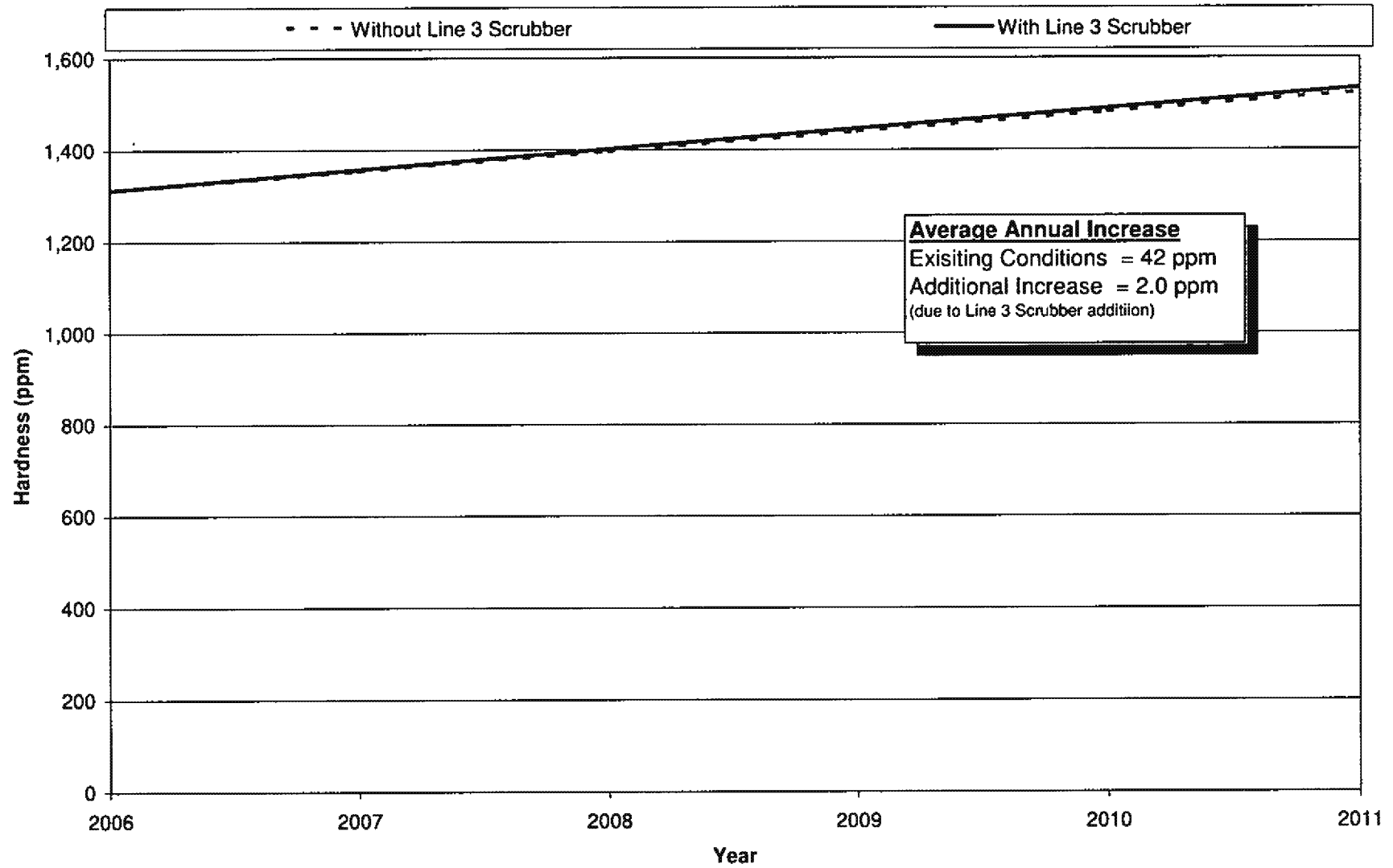
Predicted Tailings Basin Sulfate Concentration





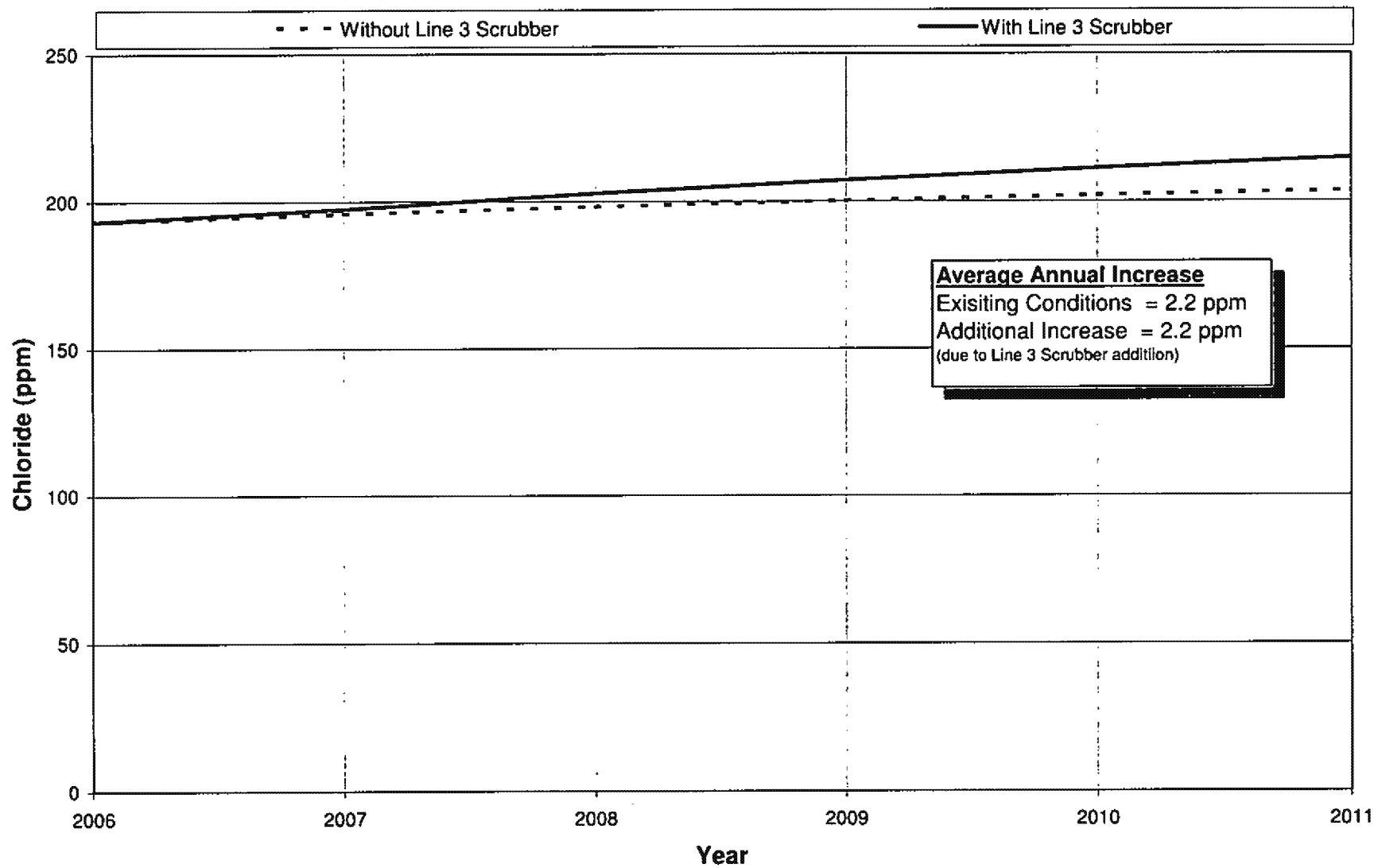


Predicted Tailings Basin Hardness Concentration



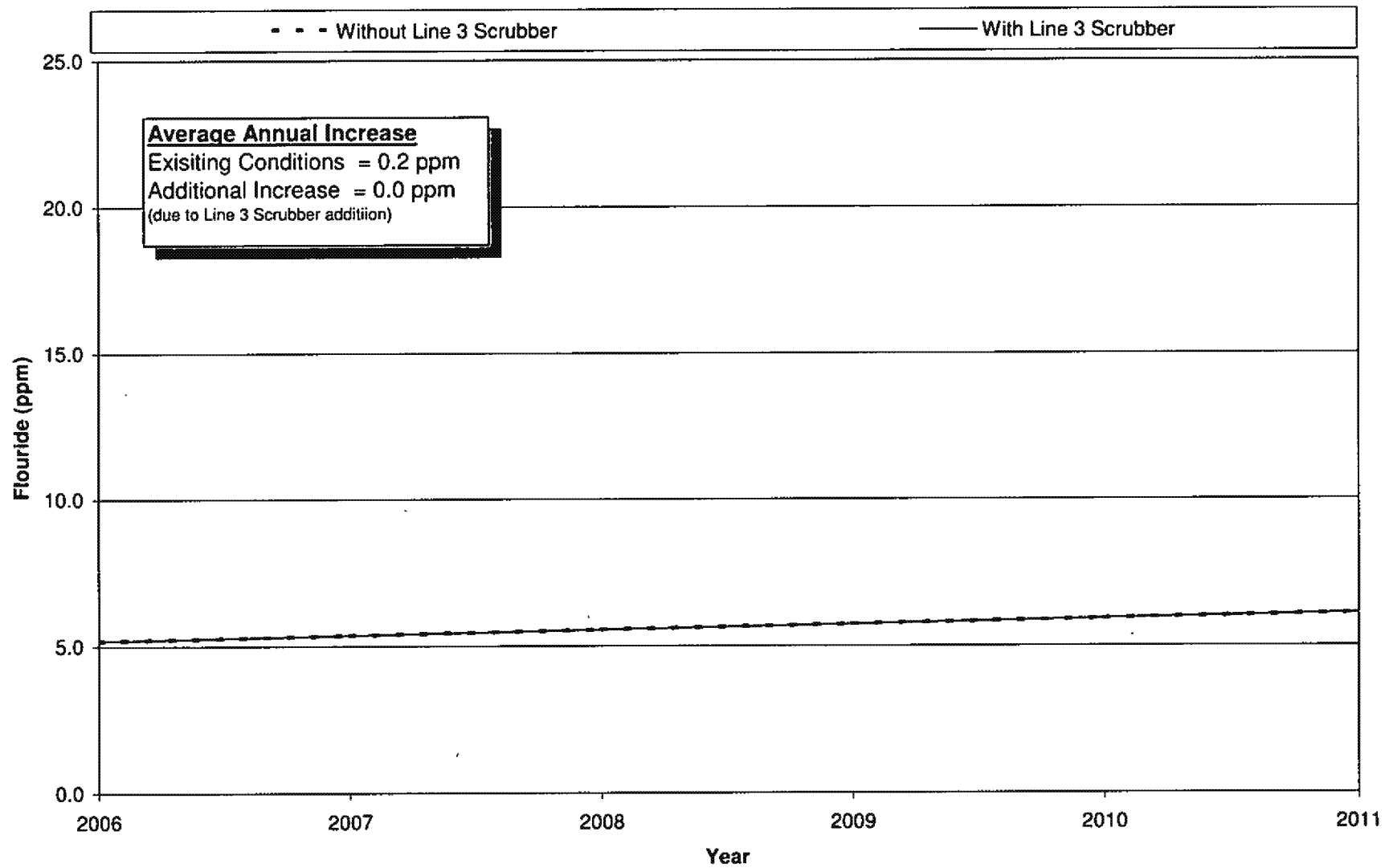


Predicted Tailings Basin Chloride Concentration



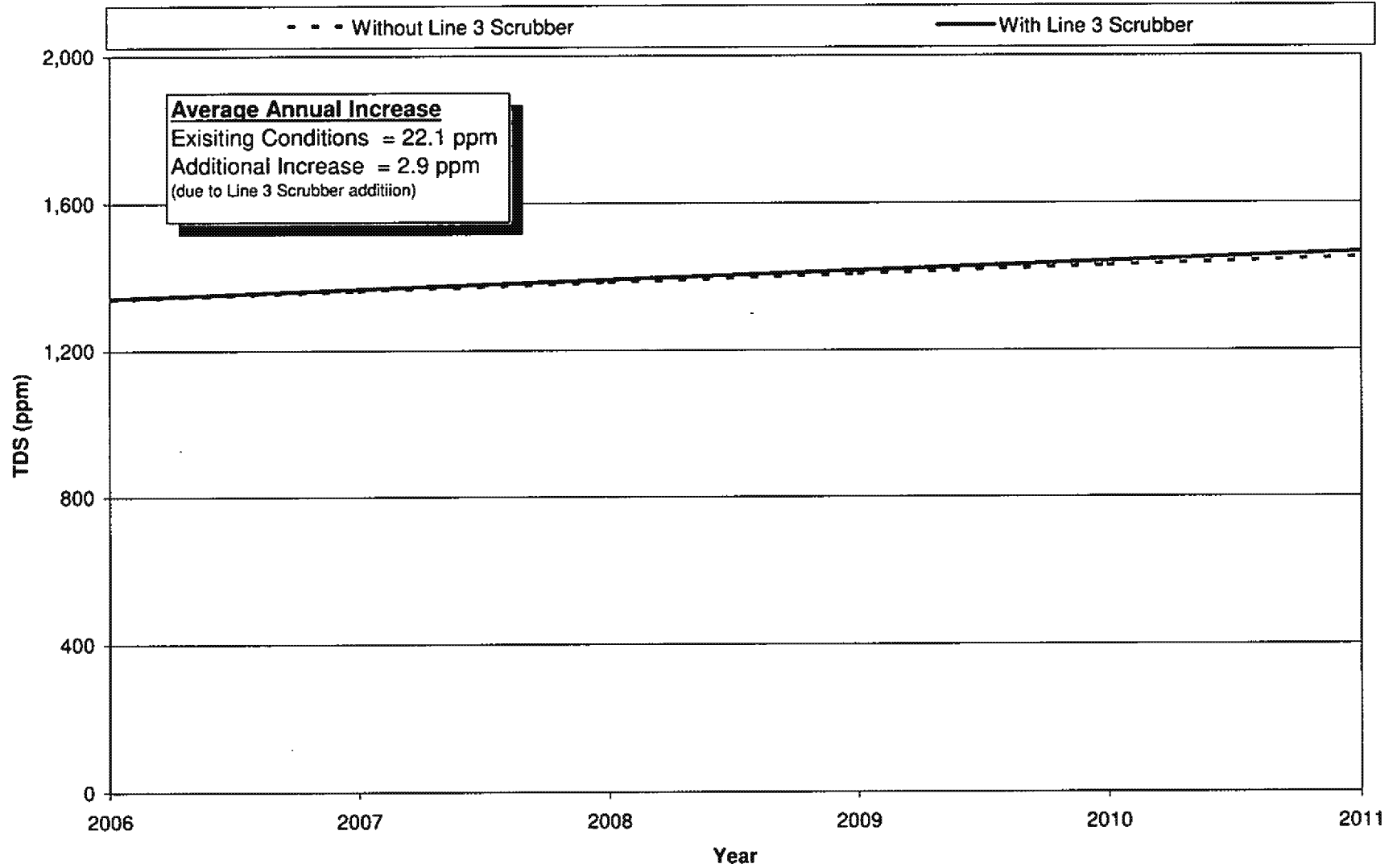


### Predicted Tailings Basin Fluoride Concentration





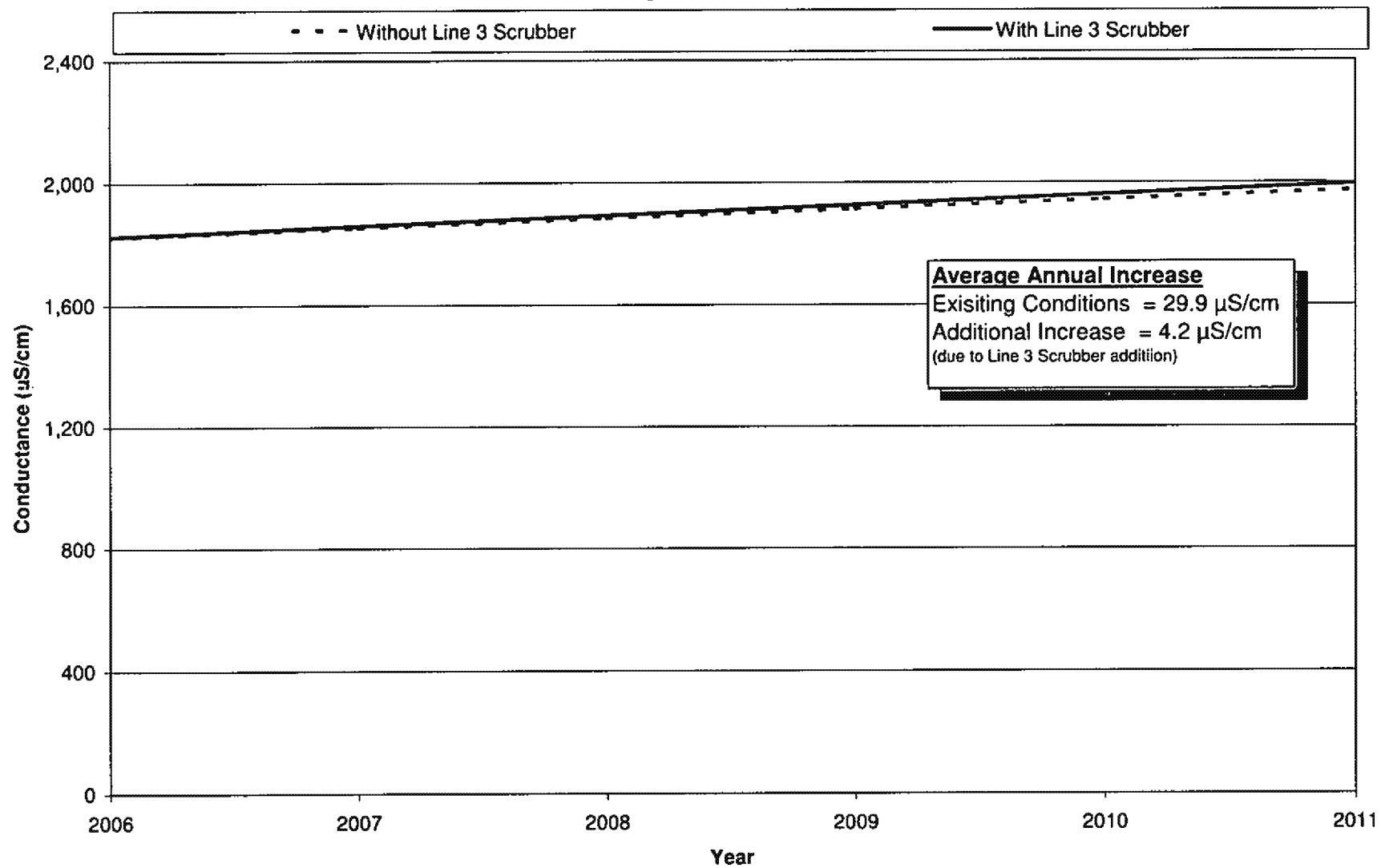
### Predicted Tailings Basin Total Dissolved Solids Concentration







### Predicted Tailings Basin Conductance





**Attachment 3A and 4A**  
**Information on chemical composition and Material Safety Data Sheets**

